

REMARKS/ARGUMENTS

A. General:

1. Claims 1 and 9 have been amended to recite an extended Kalman filter; support for this change is discussed below.
2. Claims 1-14 remain in the application.

B. 103 Rejections:

1. The Examiner has rejected claims 1-7 under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,646,525 to Gilboa in view of U. S. Patent No. 4,829,250 to Rotier.

As noted in Applicants' specification and claims, Applicants' invention uses a plurality of magnetic field transmitters and at least one magnetic field receiver, transmitters and receivers capable of being geometrically arbitrarily oriented relative to a fixed reference frame, and determines position, velocity and acceleration of an object using magnetic field currents. Gilboa discloses an apparatus for determining the position and orientation of a helmet worn by a crew member in a vehicle (see abstract, lines 1-2) and, as its preferred embodiment, orthogonal sensors/detectors (col. 2, lines 33-50; Fig. 5). On the other hand, Applicants' invention, as claimed, is capable of being geometrically arbitrarily oriented (see also, e.g., Applicants' Fig. 2C).

Applicants have amended claim 1 to now recite that the programmed computer comprises an extended Kalman filter (specification page 7, lines 20-23). Gilboa does not disclose the use of a Kalman filter, as well as, as noted above, arbitrarily oriented sensors/detectors, and, therefore, cannot in conjunction with Rotier render claim 1, or claims 2-7 that depend therefrom, obvious.

2. The Examiner has rejected claims 9-13 under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,646,525 to Gilboa in view of 5,307,072 to Jones, Jr. and U.S. Patent No. 4,829,250 to Rotier.

As with claim 1, Applicants' have amended claim 9 to recite that the method includes application of an extended Kalman filter. As noted above, Gilboa does not disclose this and neither does Jones, Jr. Therefore, the cited references do not render obvious claim 9, as amended, or claims 10-13 which depend therefrom.

3. The Examiner has rejected claim 8 under 35 USC 103(a) as being unpatentable over Gilboa in view of Rotier as applied to claim 1, and further in view of U.S. Patent No. 5,307,072 to Jones, Jr.

For the reasons stated above in Applicants' response to the Examiner's use of Gilboa to reject claims 1-7, Applicants submit that the use of Gilboa in this rejection is also improper and that, without Gilboa, the rejection of claim 8 cannot stand.

4. The Examiner has rejected claim 14 under 35 USC 103(a) as being unpatentable over Gilboa in view of Rotier as applied to claim 9 and, further, in view of U.S. Patent No. 5,347,289 to Elhardt.

Elhardt discloses the use of a multiple frequency magnetic field with a low frequency component that is below the level of eddy current effects thus eliminating some of the metal effects within a cockpit. This will provide an accurate measure of position to correct the high frequency updates periodically for eddy current effects.

Applicants' invention, on the other hand, does not use a low frequency component to eliminate the eddy current effects of metal. Rather, Applicants' algorithm portion of their invention models and accounts for the eddy currents generated in the metal, i.e., the metal generates "virtual" magnetic field transmitters that can be treated as additional transmitters with their own unique position and orientation (specification, page 5, lines 34-36, and page 6, lines 1-2).

Both Applicants and Elhardt are attempting to deal with eddy current effects but they do it in completely different ways. Thus, for this reason and for the reasons stated above in Applicants' response to the Examiner's use of Gilboa to reject claims 9-13, the

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references cited by the Examiner cannot be properly combined to reject claim 14 for obviousness.

C. Conclusion:

In view of the above, Applicants submit that each of the presently pending claims in this application is in immediate condition for allowance. Reconsideration and withdrawal of the rejections are requested. Allowance of claims 1-14 at an early date is solicited.

Respectfully submitted,

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